

# TASK ORDER (TO)

47QFCA18F0114

## Army Intelligence Digital Transformation Engineering Services (AIDTES)

in support of:

**Army Communications-Electronics Research, Development  
and Engineering Center (CERDEC), Intelligence and  
Information Warfare Directorate (I2WD)**



**Awarded to:**

**Booz Allen Hamilton**

**under the General Services Administration (GSA) One Acquisition Solution for Integrated  
Services (OASIS) Multiple Award (MA) Indefinite Delivery/Indefinite Quantity (IDIQ) –  
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**Awarded by:**

**The Federal Systems Integration and Management Center (FEDSIM)  
1800 F Street, NW (QF0B)  
Washington, D.C. 20405**

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## **C.1 BACKGROUND**

The Information Intelligence Warfare Directorate (I2WD), operating under U.S. Army Communications-Electronics Research, Development and Engineering Center (CERDEC), serves as the Army's center for Research and Development (R&D) of advanced cyber operations, Electronic Warfare (EW), Signals Intelligence (SIGINT) technologies, radar, and information systems and processing. Today's Army faces new and varying threats from unconventional and asymmetric warfare, that demand the need for capabilities that thwart these threat actions and allow soldiers to stay steps ahead of adversaries. From initial concept through fielding, I2WD supports full lifecycle management of enterprise-scale systems and provides engineering support to Program Executive Offices (PEOs).

The global landscape of Army operations is entering a period of significant transition which is expected to accelerate over the next decade. This transition considers political and environmental factors and requires adaptability, sustainability, and innovation as strategic measures. I2WD recognizes these transition changes and proposes a strategic focus to meet future challenges. This vision has been developed in close coordination with partner agencies and other ongoing Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, Reconnaissance (C5ISR) programs such as Army Research Laboratory (ARL), PEO Intelligence, Electronic Warfare and Sensors (IEW&S), PEO Command Control Communications - Tactical (C3T), and community-based Science and Technology (S&T) investment strategies in multiple areas as it relates to Multi-Domain Battle (MDB).

I2WD's strategic vision represents a core philosophy that maximizes the value of R&D through adaptable innovation. The concept of adaptable innovation allows for advancement specific to requirements and needs, independent of technological achievement. Technology is a driver for achieving capability and is one of several tools to achieve groundbreaking success. Breakthrough moments cannot be scheduled, and aiming for large technological success often requires unsustainable long-term investment. By aligning the organization to requirements-focused development, innovation can occur and can be adapted to meet the evolving needs of the Army. The strategic vision supports full-spectrum combat operations as well as humanitarian missions, which typify force deployments.

The doctrine of adaptable innovation focuses on functional, near-term capabilities that mature through a framework of long-term objectives, allowing CERDEC to be recognized as the premier C5ISR S&T leader within the Army. Adaptable innovation narrows in on requirements and capabilities, severing the relationship and reliance on individual products, applications, or technologies, thereby allowing innovation to occur. A focus on operational capability requirement forces technology achievements to fill in the gaps holistically.

### **C.1.1 PURPOSE**

The purpose of this TO is to support I2WD in system and system-of-systems engineering design, analysis, testing, and experimentation to advance the next generation of Army cyber, EW, SIGINT, Intelligence Processing, Exploitation, and Dissemination (PED), and radar capabilities. This TO will assist in developing and integrating quick reaction capabilities to fill urgent needs and support end user operational requirements. This TO will provide integration activities that include software engineering activities, post-production software engineering support,

modernization technology insertion, Computer Software Configuration Items (CSCIs), nodes and user capabilities, and modifications unique to the Common Operating Environment (COE).

### **C.1.2 AGENCY MISSION**

The CERDEC I2WD provides the U.S. Army with effective intelligence and information warfare tools, guaranteeing soldiers the information dominance needed on today's battlefield. The I2WD mission is to research, develop, and evaluate Intelligence, Surveillance, Reconnaissance (ISR); EW; and cyber technologies to provide effective, proactive situational awareness, tracking, targeting, and survivability solutions that transition into operational relevant capabilities for the soldier. These activities will prepare capabilities for integration and operational deployment and maintain the Family of Systems (FoS) operational readiness for capabilities deployed to Army units and Department of Defense (DoD) programs.

### **C.2 SCOPE**

This TO will provide complex program management, management consulting, engineering, and logistics professional services for complex system of systems architectures operating across multiple branches and operational theatres supporting National, Joint, and Tactical level intelligence operations and domains. The services provided will include baseline improvement, modernization efforts, and technology insertion. The professional services will assist in maintaining the PEO IEW&S and PEO C3T FoS, also known as the COE, operational readiness for systems and capabilities deployed to various Army units and DoD programs. Long-distance travel in support of this TO is also anticipated for the deployment of personnel to various Continental United States (CONUS) and OCONUS locations when required to include multiple Combatant Commands (CCMDs).

### **C.3 CURRENT ENVIRONMENT**

The approach for Army Intelligence Digital Transformation Engineering Services (AIDTES) focuses on fielding, fixing, and modifications. Where capabilities were once deployed in software development increments, the program approach has transformed to an agile capability drop framework to provide:

- a. Improved usability and reliability
- b. Enhanced visualization
- c. Analytical tools and data integration
- d. Cyber analytics incorporation
- e. Emerging cybersecurity considerations
- f. Scalability by echelon
- g. Alignment with the Intelligence Community Information Technology Enterprise (IC ITE)
- h. Open System Architecture.

### **C.4 OBJECTIVE**

The objective of this TO is to provide the I2WD Intelligence Technology Branch and the COE with ongoing mission-critical software and systems engineering, testing and evaluation, design,

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prototyping, development, data access analysis, and system integration assessment support services to increase Army Intelligence system capabilities and interoperability.

Specifically, this includes the following objectives:

- a. Conduct hardware and software engineering activities, accreditation activities, and tactical intelligence baseline planning and engineering.
- b. Conduct functional and performance Test and Evaluation (T&E), and verify system functionality and interoperability.
- c. Provide logistics support to include developing and updating technical manuals and quick reference guides for field support operators, training course materials, field support engineering, and new equipment training support for CONUS and OCONUS locations.
- d. Create, configure, and maintain complete integration environments for current and future Army IT systems development for both tactical and strategic platforms.
- e. Provide integrated solutions for hosting tactical intelligence capabilities on U.S. Army vehicles.
- f. Review and analyze the technical necessity, accuracy, and completeness of proposed tactical intelligence system capability drops to ensure interoperability and continued system performance at required levels.
- g. Develop and facilitate training courses.

### **C.5 TASKS**

The following tasks are in support of this contract and are detailed below:

- a. Task 1 - Program Management
- b. Task 2 - Government Led Systems Integration (GLSI) Engineering Services
- c. Task 3 - Government Sponsored Research and Development (GSRD) Services
- d. Task 4 - Training

#### **C.5.1 TASK 1 – PROGRAM MANAGEMENT**

The contractor shall provide program management support under this TO. This includes the management and oversight of all activities performed by contractor personnel, including subcontractors, to satisfy the requirements identified in this Performance Work Statement (PWS). The contractor shall identify a Program Manager (PM) by name, who shall provide management, direction, administration, quality assurance, and leadership of the execution of this TO.

The contractor shall facilitate Government and contractor communications and all activities necessary to ensure the accomplishment of timely and effective support, performed in accordance with the requirements contained in this contract. As new work requests are identified, the contractor shall provide initial estimates for level of effort (LOE) and schedules for completion.

The contractor shall conduct regular reviews of the Program Management Plan (PMP) as well as reviews of staff assignments, contractor's monthly progress, status and financial reports with the I2WD Technical Point of Contact (TPOC) and Federal Systems Integration and Management

Center (FEDSIM) Contracting Officer's Representative (COR). The contractor shall provide and maintain a status of Government-Furnished Property (GFP) (**Section F.3, Deliverable 43**) list. The contractor shall inform the FEDSIM COR, and I2WD TPOC of any technical, financial, personnel, or general managerial problems encountered throughout the contract's PoP.

#### **C.5.1.1 SUBTASK 1.1 – ACCOUNTING FOR CONTRACTOR MANPOWER REPORTING**

Army Contractor Manpower Reporting System requirements apply to this effort and all manpower requirements shall be input into DoD Enterprise Contractor Manpower Reporting Application (ECMRA) as required. To fulfill this Army reporting requirement, the following I2WD TPOC information is provided:

The Unit Identification Code (UIC) for the I2WD TPOC is: W4G8AA.

The Federal Service Code (FSC) for the I2WD TPOC is: AJ44.

The Command Code for the I2WD TPOC is: G.

Fiscal Funding Station Code: S28043.

The contractor shall report ALL contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the CERDEC I2WD via a secure data collection site. The contractor shall completely fill in all required data fields using the following web address: <http://www.ecmra.mil/>.

Reporting inputs will be for the labor executed during the PoP during each Government Fiscal Year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year. Contractors may direct questions to the support desk at: <http://www.ecmra.mil/>.

Contractors may use Extensible Markup Language (XML) data transfer to the database server or fill in the fields on the website. The XML direct transfer is a format for transferring files from a contractor's systems to the secure web site without the need for separate data entries for each required data element at the website. The specific formats for the XML direct transfer may be downloaded from the web.

#### **C.5.1.2 SUBTASK 1.2 – COORDINATE A PROGRAM KICK-OFF MEETING**

The contractor shall schedule, coordinate, and host a Program Kick-Off Meeting at the location approved by the Government (**Section F.3, Deliverable 02**). The meeting will provide an introduction between the contractor personnel and Government personnel who will be involved with the contract. The meeting will provide the opportunity to discuss technical, management, financial, and security items, as well as travel authorization and reporting procedures. At a minimum, the attendees shall include Key contractor Personnel, representatives from I2WD, other relevant Government personnel, and the FEDSIM COR. At least three days prior to the Kick-Off Meeting, the contractor shall provide a Kick-Off Meeting Agenda (**Section F.3, Deliverable 01**) (**Section J.1, Attachment T**) for review and approval by the FEDSIM COR and the I2WD TPOC prior to finalizing.

The Government will provide the contractor with the number of Government participants for the Kick-Off Meeting and the contractor shall provide sufficient copies of the presentation for all present.

The contractor shall draft and provide a Kick-Off Meeting Minutes Report (**Section F.3, Deliverable 03**) documenting the Kick-Off Meeting discussion and capturing any action items.

#### **C.5.1.3 SUBTASK 1.3 – PREPARE A MONTHLY STATUS REPORT (MSR)**

The contractor shall develop and provide a MSR (**Section F.3, Deliverable 04**). The MSR shall include the following at a minimum:

- a. Activities during reporting period, by work request (include on-going activities, new activities, and activities completed, and progress to date on all above mentioned activities). Each section shall start with a brief description of the work request.
- b. Problems and corrective actions taken. Also include issues or concerns and proposed resolutions to address them.
- c. Risks and proposed risk mitigation.
- d. Personnel gains, losses, and status (security clearance, etc.).
- e. Government actions required.
- f. Schedule (show major tasks, milestones, and deliverables; planned and actual start and completion dates for each).
- g. Summary of trips taken, conferences attended, etc. (attach trip reports to the MSR for reporting period).
- h. Accumulated invoiced cost for each CLIN up to the previous month.
- i. Projected cost of each CLIN for the current month.

A sample MSR template is provided in **Section J.1, Attachment D** that outlines the Government's minimum requirements. The MSR shall be in a format agreed upon by the I2WD TPOC and FEDSIM COR. Any modifications, enhancements, or deviations from the provided MSR template shall be approved by the FEDSIM COR prior to submission.

#### **C.5.1.4 SUBTASK 1.4 – CONDUCT AND ATTEND PROGRAM MEETINGS**

The contractor shall conduct, attend, and participate in various project- and program-related meetings. Meetings shall be conducted at both the contractor and Government facilities.

- a. Convene Technical Status Meetings: The contractor PM shall conduct a monthly technical status meeting with the I2WD TPOC, FEDSIM COR, and other Government stakeholders. The purpose of this meeting is to ensure all stakeholders are informed of the monthly activities and MSR, provide opportunities to identify other activities and establish priorities, and coordinate resolution of identified problems or opportunities.
- b. Meeting/Conference Support/Technical Exchange Meetings (TEMs): The contractor shall organize, attend, and participate in meetings and conferences, program status, design, and production reviews in support of I2WD's portion of PEO IEW&S and PEO C3T efforts and provide meeting, conference, progress, and status reports, as required (**Section F.3, Deliverable 07**). The contractor shall host meetings, conferences, and TEMs at its facilities within the local travel area of Aberdeen Proving Ground (APG) (6003 Combat Drive, APG, Maryland (MD) 21005) capable of supporting small (8-10 person) to large (50 person) unclassified meetings. The meeting room/space shall be at no direct cost to the Government. The contractor shall attend, coordinate, and/or lead TEMs focusing on

those areas where technical exchange is necessary to ensure program interests are addressed.

- c. Conduct Program Management Review (PMR) meetings: The contractor shall conduct periodic PMR meetings, at least quarterly, focused on progress, task adjudication, and issues that may affect the overall program to the FEDSIM COR, I2WD TPOC, and stakeholders (e.g., I2WD, PEO IEW&S, and PEO C3T). The PMR shall also report on staffing, and financial status. As a part of the PMR, the contractor shall be prepared to explain the reasoning, assumption, and methodologies in arriving at particular conclusions, recommendations, or alternatives in the accomplishment of the tasks required by the contract. The contractor shall have Key Personnel available to support the PMR. Subcontractors shall attend PMR meetings when required to address key elements. The contractor shall prepare the PMR agenda, meeting minutes (**Section F.3, Deliverable 07**), and presentation material (**Section F.3, Deliverable 08**). PMRs shall be conducted no less than quarterly; however, more frequent PMRs may be required.

#### **C.5.1.5 SUBTASK 1.5 – PREPARE A PROGRAM MANAGEMENT PLAN (PMP)**

The contractor shall document all support requirements in a PMP. The contractor shall provide the Government with a draft PMP (**Section F.3, Deliverable 10**) on which the Government will make comments. The final PMP (**Section F.3, Deliverable 11**) shall incorporate the Government's comments.

The PMP shall:

- a. Describe the proposed management approach and contractor program organizational structure with roles and responsibilities.
- b. Provide an overall Work Breakdown Structure (WBS) and associated responsibilities and partnerships between or among Government organizations.
  - 1. The WBS shall identify all technical activities at a level of detail sufficient for the contractor to manage the work at no less than a week-by-week basis.
  - 2. Each WBS element shall be accompanied by a description, estimate of duration, and expected result(s).
- c. Describe the contractor's approach to manage, execute, and track multiple work requests.
- d. Describe in detail the contractor's approach to risk management under this TO and approach to communications including processes, procedures, communication approach, and other rules of engagement between the contractor and the Government.
- e. Describe in detail the contractor's quality control methodology for accomplishing TO performance expectations and objectives. This includes how the contractor's processes and procedures will be tailored and integrated with the Government's requirements to ensure high-quality performance.
- f. Contain detailed Standard Operating Procedures (SOPs) for all tasks and managing work requests.
- g. Provide a schedule which includes program milestones, deliverables, tasks, and subtasks required in this TO.
- h. Include the contractor's general operating procedures for:
  - 1. Travel

2. Work hours
3. Leave
4. Staff training policies
5. Problem or issue resolution procedures

**C.5.1.6. SUBTASK 1.6 – UPDATE THE PROGRAM MANAGEMENT PLAN (PMP)**

The PMP is an evolutionary document that shall be updated annually at a minimum (**Section F.3, Deliverable 12**). The contractor shall work from the latest Government-approved version of the PMP.

**C.5.1.7 SUBTASK 1.7 – FINANCIAL REPORTING**

The contractor shall provide a Financial Report with every MSR (**Section F.3, Deliverable 04**). The Financial Report shall include the following:

- a. Identification of the funding source.
- b. Monthly expenditures by work requests and TO level from the start of the PoP.
- c. Project monthly expenditures and labor hours by work request and TO level starting with the current month through the end of the PoP.
- d. Funded levels on the TO and by Agency.
- e. Labor hours incurred to date on the TO, and by Agency.
- f. Funds remaining by work request, CLIN, and tasks.
- g. Diagram reflecting funding and burn rate by month for the TO and at the Agency-level.
- h. Cumulative invoiced amounts for each CLIN up to the previous month.
- i. Estimated burn rate and project duration.

The contractor shall present a draft Financial Report format at the Program Kick-Off Meeting (**Section F.3, Deliverable 13**) for Government review. The Government will provide written approval of the proposed format via the FEDSIM CO or FEDSIM COR, and this approved format shall be utilized for the monthly Financial Report requirement. The Government may request updates to the format based on I2WD requirements and Agency needs. Any changes to the format will be requested in writing via the FEDSIM CO or FEDSIM COR.

**C.5.1.8 SUBTASK 1.8 – PROVIDE MEETING REPORTS**

The contractor shall submit Meeting Reports (**Section F.3, Deliverable 07**), as requested by the I2WD TPOC and/or FEDSIM COR, to document meetings. The Meeting Reports shall, at a minimum, include the following information:

- a. Meeting attendees and their contact information and, at a minimum, identify organizations represented
- b. Meeting date and location
- c. Meeting agenda
- d. Purpose of meeting
- e. Summary of what transpired (issues and risks discussed, decisions made, and action items assigned)



- f. Conclusion
- g. Recommendation(s)
- h. Next scheduled event(s) impacting or impacted by the meeting

#### **C.5.1.9 SUBTASK 1.9 – PREPARE CUSTOMER WORK REQUESTS**

The contractor shall prepare customer work requests in close coordination with the I2WD Government Project Lead. The contractor shall tailor the requirements for each customer work request to match the complexity of the I2WD customer Project Requirements Sheet (PRS). The contractor shall provide the Government with a Draft customer work request (**Section F.3, Deliverable 14**). The Final customer work request (**Section F.3, Deliverable 15**) shall incorporate the Government's comments.

The customer work request is an evolutionary document that shall be updated as elements of the project change. The contractor shall work from the latest Government-approved version of the customer work request. The customer work request shall include:

- a. Project scope
- b. Project cost estimate (Rough Order of Magnitude (ROM))
- c. Master Equipment List (MEL)/Bill of Materials (if applicable)
- d. Project schedule including milestones, tasks, and subtasks required in this project
- e. Project risks and mitigation
- f. Project staff and resources
- g. Performance criteria
- h. Travel considerations
- i. Project work products deliverables
- j. Security considerations
- k. WBS
- l. Project transition
- m. I2WD customer feedback participation

#### **C.5.1.10 SUBTASK 1.10 – OPERATIONS SCHEDULE**

The contractor shall maintain and provide for review of day-to-day work plans for activities by team members, including subcontractors. The contractor shall provide for regular reviews of management plans as well as reviews of resource assignments to the I2WD TPOC and FEDSIM COR and stakeholders (e.g., I2WD, PEO IEW&S, and PEO C3T). The contractor shall develop an Operations Schedule (**Section F.3, Deliverable 09**) to assist with the overall orchestration of resources and efforts. The Operations Schedule shall remain up-to-date and ready for submission to the Government upon request. The Operations Schedule shall be reviewed for completeness in bi-monthly meetings with the Government. The Operations Schedules shall be in a format agreed upon with the I2WD TPOC and include, at a minimum, a method to track by task, brief task description, task created and expected completion dates, and assigned resource.

#### **C.5.1.11 SUBTASK 1.11 – PREPARE TRIP REPORTS**

The Government will identify the need for a Trip Report when the request for travel is submitted (**Section F.3, Deliverable 16**). The contractor shall keep a summary of all long-distance travel including, but not limited to, the name of the employee, location of travel, duration of trip, and Point of Contact (POC) at travel location. Trip reports shall also contain Government approval authority, total cost of the trip, a detailed description of the purpose of the trip, and any knowledge gained. At a minimum, trip reports shall be prepared with the information provided in **Section J.1, Attachment S**.

#### **C.5.1.12 SUBTASK 1.12 – PERFORMANCE MANAGEMENT**

The AIDTES TO is a performance-based contract under which the Government will rate the contractor according to the performance criteria defined for all task areas. The Government will establish an AFDP (**Section J.1, Attachment W**) with the contractor after TOA that provides procedures for evaluating the contractor's performance. The Government will use the AFDP as a basis for evaluating contractor performance in a systematic way by using performance metrics and Acceptable Quality Levels (AQLs).

Overall, the contractor shall provide a self-assessment report every quarter during each PoP; so, two Interim Self-Assessment Progress Reports and two Award Fee Period Self-Assessment Reports shall be provided during the base period and during each option period. The contractor shall provide Interim Self-Assessment Progress Reports (**Section F.3, Deliverable 05**) one quarterly period prior to providing the Award Fee Period Self-Assessment Reports (**Section F.3, Deliverable 21**). The Government will provide an interim assessment, in writing, in response to the contractor's Interim Self-Assessment Progress Reports. The contractor shall provide Award Fee Self-Assessment Reports to coincide with the Government Award Fee Evaluation Board (AFEB) timeframes. The Government will hold an AFEB meeting to evaluate contractor performance approximately every six months to determine award fee payment.

The initial AFDP will be finalized No Later Than (NLT) 15 workdays after TOA and can include proposals for award fee performance measures/metrics from the contractor. A separate Quality Assurance Surveillance Plan (QASP) will not be provided for this TO as the AFDP will serve the purpose of the QASP. The AFDP may be revised unilaterally by the Government at any time during the PoP. The Government will make every attempt to provide changes to the contractor 15 workdays prior to the start of the evaluation period to which the change will apply. The Government may re-evaluate the AFDP each evaluation period, opting to consider input from the contractor. The Government may, at its option, unilaterally revise the AFDP to include metrics gathered from the re-evaluation to be applied in future award fee periods.

The amount of the award fee earned and payable to the contractor for achieving specified levels of performance will be determined by the Award Fee Determination Official (AFDO), with the assistance of the AFEB, per the AFDP. The maximum fee payable for any period is 100% of the Award Fee Pool Allocation. The contractor may earn all, part, or none of the Award Fee allocated to an Award Plan Evaluation Period.

#### **C.5.1.13 SUBTASK 1.13 – TRANSITION-IN**

The contractor shall ensure that there will be minimum service disruption to vital Government business and no service degradation during and after transition. The contractor shall update the

proposed Draft Transition-In Plan submitted with its proposal, as appropriate, and provide a Final Transition-In Plan (**Section F.3, Deliverable 17**) within five workdays after the Program Kick-Off Meeting. The contractor shall implement its Transition-In Plan when the Government accepts the Transition-In Plan as final. All transition activities shall be completed 90 calendar days after approval of the final Transition-In Plan.

During the Transition-In period, the contractor shall prepare to meet all TO requirements and ensure all incoming personnel are trained and qualified to perform. During the Transition-In period, the contractor's personnel shall interface with Government personnel and other contractor personnel for purposes of transferring knowledge, lessons learned, and continuity of information and documents for the commencement of performance.

#### **C.5.1.14 SUBTASK 1.14 – TRANSITION-OUT**

The contractor shall provide Transition-Out support when required by the Government. The contractor shall facilitate the accomplishment of a seamless transition from the incumbent to an incoming contractor/Government personnel at the expiration of the TO. The contractor shall provide a draft Transition-Out Plan (**Section F.3, Deliverable 18**) NLT 150 calendar days prior to expiration of the TO and the offeror shall provide a final Transition-Out Plan (**Section F.3, Deliverable 19**) NLT 120 calendar days prior to expiration of the TO. The contractor shall identify how it will coordinate with the incoming contractor and/or Government personnel to transfer knowledge regarding the following:

- a. Project management processes
- b. Points of contact
- c. Location of technical and project management documentation
- d. Status of ongoing technical initiatives
- e. Appropriate contractor to contractor/Government coordination to ensure a low risk transition
- f. Transition of Key Personnel
- g. Schedules and milestones
- h. Actions required of the Government

The contractor shall also establish and maintain effective communication with the incoming contractor/Government personnel for the period of the transition via weekly status meetings or as often as necessary to ensure a seamless transition out.

The contractor shall implement its Transition-Out Plan in accordance with the Government-approved Transition-Out Plan and NLT 120 calendar days prior to expiration of the TO. All facilities, equipment, and material utilized by the contractor personnel during performance of the TO shall remain accessible to the contractor personnel during the transition-out period pursuant to the applicable security in-processing and out-processing guidelines.

#### **C.5.2 TASK 2 – GOVERNMENT LED SYSTEMS INTEGRATION (GLSI) ENGINEERING SERVICES**

GLSI provides full lifecycle systems development, sustainment, and security engineering services to Government and military programs using a scaled agile approach. The contractor

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shall provide hardware and software engineering support, which requires experience and knowledge of PEO IEW&S and PEO C3T systems, Virtual Private Network (VPN) and firewall configuration to maintain security requirements, Containerization, Puppet, automated scripting, diagnostic program creation, Zabbix, and Kibana. At times, this task may require the contractor to provide a rapid response of dynamic and responsive engineering and domain expertise to Government customer program requirements for a timeframe determined at the time the requirements emerge, and may be for a short-term limited basis or a long-term duration. The rapid response may be in response to fixing bugs or to meeting deployment timelines.

The contractor shall provide unclassified physical production, engineering, and assessment facilities at no direct cost to the Government, serving Government interests, for advancing early assessment, prototyping, and integration of commercial, academic, and Government innovations.

The contractor shall provide the following GLSI support:

- a. Create, configure, and maintain complete integration environments including maintaining, at a minimum, an unclassified lab at the contractor facility at no direct cost to the Government with a VPN connection to the I2WD Software Integration Laboratory (SIL) for T&E activities and final software delivery.
- b. Provide Government-centric architectural governance ensuring open architectural solutions that facilitate a more responsive and agile engineering approach that results in a more dynamic and competitive innovation process.
- c. Support the maturation and facilitation of software integration analysis and reporting through assessments of Government-provided products to validate whether the product and integration meets the objectives of I2WD (**Section F.3, Deliverables 21**).
- d. Conduct operational and mission-centric assessments, integration, and prototyping of Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) innovations advancing future force capabilities while maximizing commercial competition.
- e. Conduct and support vehicle/shelter subsystem fabrication and integration.
- f. Provide Scientific and Technical Reports (**Section F.3, Deliverable 26**) that may include software performance metrics and results.
- g. Provide reports as required to support technical reviews including Analysis of Alternatives (AoA), Requirements Readiness Reviews, Preliminary and Critical Design Reviews (CDR), Test Readiness Reviews (TRRs), and Deployment Readiness Reviews (DRRs).
- h. Provide maintenance releases, modifications, fixes, and end of life replacement, hardware refresh, and cyber patching.
- i. Assist with the transition to automated tools.
- j. Provide continuous fielding and training to support the Army's ISR mission for PED of information and intelligence data across echelons.
- k. Provide the following deliverables that capture the scope of this TO:
  1. Software Test Report (**Section F.3, Deliverable 23**)
  2. Software Design Description (SDD) (**Section F.3, Deliverable 25**)
  3. Software Product Specification (SPS) (**Section F.3, Deliverable 27**)
  4. Software User Manual (**Section F.3, Deliverable 28**)

5. Software Requirements Specification (SRS) (**Section F.3, Deliverable 33**)
6. Software Version Description (**Section F.3, Deliverable 36**)
7. Software Test Plan (**Section F.3, Deliverable 37**)
8. Software Test Description (**Section F.3, Deliverable 38**)
9. Interface Requirement Specification (IRS) (**Section F.3, Deliverable 39**)
10. Operational Concept Document (OCD) (**Section F.3, Deliverable 40**)
11. Computer Software Product End Items (**Section F.3, Deliverable 41**)
12. Interface Design Description (IDD) (**Section F.3, Deliverable 42**)

#### **C.5.2.1 SUBTASK 2.1 – ENTERPRISE-SCALE DISTRIBUTED SYSTEMS ARCHITECTURE AND ENGINEERING**

This subtask requires providing system engineering support for target Army cyber, C5ISR software-based systems and platforms to include requirements analysis, design, vendor management, software acceptance, and design of tactical intelligence system components. This engineering support includes direct support to COE FoS and contained software baselines. The contractor shall provide specialized expertise support for the target ISR domains to include, but not limited to, all source, collection management, Human Intelligence (HUMINT), SIGINT, Cyber Intelligence (CYBINT), EW, weather, and data analytics.

The contractor shall provide the following Enterprise-Scale Distributed Systems Architecture and Engineering support:

- a. Conduct system engineering, integration, testing, and delivery for complex system of systems architectures operating distributed across multiple branches, and operational theatres supporting National, Joint, and Tactical level intelligence operations and domains including, but not limited to, All-Source, Fusion, Mission Command Interoperability, Space Operations, Battalion Solutions, Geospatial, HUMINT, Geospatial Intelligence (GEOINT), Ozone Platform (OZP), SIGINT, Weather, Imagery Intelligence (IMINT), Measurement and Signature Intelligence (MASINT), CYBINT, Position, Navigation, and Timing (PNT), and the current branch-deployed intelligence system architectures.
- b. Coordinate and collaborate with analysts to directly support the development and validation of operation workflows, demonstration threads, and Concept of Operations (CONOPS) for the software baseline.
- c. Conduct requirements analysis, design, development, program management, risk management, quality control, security engineering, systems engineering, systems delivery, integration, testing, deployment and delivery of customized software, COTS, GOTS, Non-Developmental Items (NDIs), and the hybrid and convergent environment that applies these elements.
- d. Perform requirements analyses throughout the entire systems engineering process for tactical intelligence system efforts to include current software baseline and future capability drops.
- e. Coordinate and collaborate with industry partners and systems engineers during the implementation of requirements to enhance the capabilities of currently fielded and future releases of the tactical intelligence system software baselines.

- f. Conduct traceability of requirements to workflows and identify gaps across the PEO IEW&S FoS in order to identify priority requirements that need to be addressed across the program of records.
- g. Map out highly contested signal environments to include commercial and military Global Positioning System (GPS), Global Navigation Satellite System (GNSS), and microwave and satellite communications and provide recommendation on business cases in pursuing prototype design and development.
- h. Provide post-deployment software sustainment and transitional capabilities supporting Enterprise-scale systems of systems architectures.
- i. Develop open architectures, define the end state, and provide elements of technology insertion points to support the overall architecture development.
- j. Conduct testing of platforms, systems, and interfaces and develop a test report (**Section F.3, Deliverable 23**).
- k. Provide reverse engineering, integration engineering, and interface message testing for PNT devices and other devices.

#### **C.5.2.1.1 SUBTASK 2.1.1 – TACTICAL INTELLIGENCE BASELINE PLANNING AND ENGINEERING**

This subtask supports the tactical intelligence baseline planning and engineering for future releases, versions, and cloud computing.

The contractor shall provide the following Tactical Intelligence Baseline Planning and Engineering support:

- a. Conduct tactical intelligence baseline planning and engineering, and assist in planning the tactical intelligence system role(s) in subsequent System Integration Evaluations (SIE).
- b. Conduct software baseline planning and engineering for future releases, to include current and future capability drops and cloud computing, as well as coordination with and alignment with Command Post Computing Environment (CP CE) efforts.
- c. Assist in planning the tactical intelligence role in subsequent network integration evaluations.
- d. Provide versions software and hardware test and integration engineering support, to include the installation and configuration of software, integration of software, functional test execution, documentation, and reporting on all defects and activities.
- e. Act as a liaison between the Intelligence Community (IC), Training and Doctrine Command (TRADOC) Capability Manager-Foundation (TCM-F), and the PEO IEW&S and PEO C3T team to ensure all requirements are received and properly vetted against the current doctrines and practices of the Intelligence Warfighting Function (IWF).
- f. Act as a liaison between COE PMs and teams to ensure all integration requirements and usability aspects are received and properly vetted against the current doctrines and practices of the IWF.

**C.5.2.1.2 SUBTASK 2.1.2 – BASELINE TEST AND EVALUATION (T&E)**

This subtask will provide efficient and effective T&E to provide I2WD with timely and accurate information.

The contractor shall provide the following Baseline T&E support:

- a. Develop a T&E master plan (**Section F.3, Deliverable 22**), which integrates into the SIL Management plan.
- b. Verify system functionality and interoperability in the baseline reference environment comprising the FoS.
- c. Provide test support for Army demonstrations, evaluations, experiments, operational assessments, limited user tests, and onsite support at the Central Technical Support Facility (CTSF) at Fort Hood, Texas (TX) for test events such as intra-Army Interoperability Certification (AIC).
- d. Plan, design, develop, and execute all functional and performance testing of the complete software baseline (to include CP CE integration).
- e. Conduct verification, validation, and regression testing of all software baselines to prepare for fielding and release.
- f. Maximize usage of tactical capabilities and accomplishments ahead of upcoming test events by imitating a tactical unit's receipt of a tactical system as fielded materiel solution within the Ground Station Integration Facility (GSIF).

**C.5.2.1.3 SUBTASK 2.1.3 – TEST AUTOMATION/SCENARIO TESTING**

The contractor shall use existing automation tools from partners, vendors, and other Government agencies as part of the delivery of products in its solution.

The contractor shall provide the following Test Automation/Scenario Testing support:

- a. Develop a complete automated test suite across all efforts to create a holistic framework to expedite testing.
- b. Conduct testing to bring testing of the system as close as possible to actual production and include operational scenarios to ensure the system will perform the target mission needs of the Soldiers.
- c. Conduct user driven acceptance testing within the GSIF to assess and verify functional, performance, reliability, and quality assurance against the major design requirements for current and future releases of the software baselines.
- d. Gather and document feedback in coordination with ongoing Army Human Systems Integration (HSI) efforts as user representatives within the program office during engagements with the operational force and during evaluation events.
- e. Review test cases and create workflows, Tactics, Techniques, and Procedures (TTPs) within the GSIF, as well as document user stories for use at other events.
- f. Create use cases and story boards within the GSIF based on previously identified workflows and requirements to further enable development and enhancement of future software releases.

**C.5.2.1.4 SUBTASK 2.1.4 – ACCREDITATION**

The contractor shall utilize the Risk Management Framework (RMF), DoD Instruction (DoDI) 8510, to conduct activities for accreditation of systems and provide the following support:

- a. Identify, assess, analyze, document, and audit Information Assurance (IA) requirements and capabilities for PEO IEW&S and PEO C3T FoS such that Authorization To Operate (ATO), interim authorizations (e.g., Interim Authorization To Test (IATT)) and Certificate of Net Worthiness (CoN) are obtained and maintained as needed for each system implementation regardless of location and authorized approving authority (**Section F.3, Deliverable 20**).
- b. Utilize the RMF to identify, track, and manage risk to achieve and maintain appropriate IA posture for all locations and networks (e.g., Non-classified Internet Protocol Router Network (NIPRNet), Secret Internet Protocol Router Network (SIPRNet), Joint Worldwide Intelligence Communications System (JWICS), and coalition networks).
- c. Identify, assess, analyze, document, and audit IA requirements and capabilities for the Army tactical and strategic systems through the RMF accreditation process.
- d. Conduct accreditation activities across the NIPRNet, SIPRNet, JWICS, and National Security Agency Network (NSANet) enclaves.

**C.5.2.2 SUBTASK 2.2 – DATA ENGINEERING, ONTOLOGY, AND DATA FUSION**

This subtask requires full system development lifecycle support for data engineering, ontology development, data modeling, data correlation, data fusion, and data mediation within Enterprise-scale system solutions supporting high data velocity and data volume. The contractor shall leverage disparate data for machine learning and analytics applications.

The contractor shall provide the following Data Engineering, Ontology, and Data Fusion support:

- a. Plan, coordinate, and facilitate collaborative data engineering across DoD data-centric programs and developmental projects.
- b. Implement scalable data platforms using COTS/open source technologies that follows applicable data handling requirements, mitigates risk naturally inherited through data aggregation efforts, and accelerates the development of descriptive, predictive, and prescriptive analytics/visualizations.
- c. Accelerate the integration of disparate data sources at the enterprise level.
- d. Analyze roadmap dependencies, probabilistic critical paths, and cost/schedule risk or technologies and their interdependencies; aggregate end user capability set schedules (including integration and reset activities) to explore tradeoffs and optimize modernization activities across portfolio of technologies. Results of these analyses should be supported with Joint Confidence Levels around the roadmap's cost and schedule parameters, prioritized risk mitigation strategies, and cost-benefit-analyses of executing identified strategies.



**C.5.2.3 SUBTASK 2.3 – TRANSITION AND SUSTAINMENT ENGINEERING SERVICES**

Transition consists of the activities required to move from the development phase in a systems lifecycle to the fielding and sustainment phase. Sustainment follows the Lifecycle Sustainment Plan as the primary management tool to satisfy the Warfighters sustainment requirements through the delivery of a product support package. The contractor shall assist in scheduling activities with required personnel for installation and support and identify required resources.

The contractor shall provide the following Transition and Sustainment Engineering Services support:

- a. Develop interoperating hardware and software components that include a regimented approach to installation and maintenance that mitigates risks, captures detailed configurations, and operates under a flexible system management methodology, while ensuring that the binaries and configuration files are compiled, controlled, and released by a single release authority.
- b. Plan, coordinate, and facilitate the post-deployment software sustainment and post-production software sustainment requirements, management, and execution for established programs of record.
- c. Identify, manage, and mitigate the risks associated with transitional engineering for complex systems.
- d. Facilitate collaborative engineering efforts across multiple contractor resources and Government agencies, and proactively manage transitional and sustainment engineering execution.
- e. Update the Interface Control Document (ICD) (**Section F.3, Deliverable 24**) and the Software Design Document (SDD) (**Section F.3, Deliverable 25**) and integrate new capabilities during transition and sustainment.
- f. Document complex system of systems and conduct engineering gap analysis, operational gap analysis, and configuration management alignment and information transition (**Section F.3, Deliverable 26**).
- g. Conduct planning, on-site Field Support Engineering (FSE), and new equipment training support for fielding systems on an as-required basis for CONUS and OCONUS locations.
- h. Provide technical field support, over the shoulder training, integration, and testing in support of program participation in fielding directly to CONUS and OCONUS locations.

**C.5.2.3.1 SUBTASK 2.3.1 – ENGINEERING CHANGES AND CONFIGURATION MANAGEMENT SUPPORT**

This subtask requires the contractor to adhere to Configuration Management processes used to establish and control product attributes and the technical baseline across the system lifecycle. The contractor shall document, disseminate, and obtain approval of all engineering changes prior to, or as they occur.

The contractor shall provide the following Engineering Changes and Configuration Management Support:

- a. Review and analyze the technical necessity, accuracy, and completeness of proposed engineering changes to system and software baselines for the purpose of ensuring continued satisfaction of system performance and interoperability.
- b. Conduct trade-off studies to identify the most advantageous technical approach to resolve specific engineering change issues.
- c. Follow configuration management process and conduct technical review of Software Change Requests (SCRs) and participate in Engineering Review Board (ERB) and Configuration Control Board (CCB) meetings.
- d. Provide updated software releases to the Configuration Management office after testing is completed.
- e. Evaluate all system changes to include full support of the Developmental Defect Review Board (DDRB), Defect Review Board (DRB), and all other review and control boards as deemed applicable by the Government.
- f. Perform analysis and review of all target candidate defects per domain area utilizing Redmine or comparable defect tracking system to evaluate and validate all captured and reported System Incident Reports (SIR).

#### **C.5.2.3.2 SUBTASK 2.3.2 – PROCESS IMPROVEMENT**

This subtask provides continuous process improvement for I2WD's capability for delivering products. This subtask encompasses the initial baseline process capability model and a method to assess improvement after a process improvement.

The contractor shall provide the following Process Improvement support:

- a. Provide continuous process improvement to improve the efficiency of software development, integration, testing, debugging, and delivery activities.
- b. Collect and analyze software metrics to measure the quality of delivered software to include defect rates and resolution cost and timeline.
- c. Analyze current software incident reports and defects contained within the defect tracking system and produce reports as requested by the Government.
- d. Implement and maintain automated build, deployment, and system performance and analysis tools within the tactical Army infrastructure.

#### **C.5.2.3.3 SUBTASK 2.3.3 – AUTOMATION OF TACTICAL INTELLIGENCE SYSTEM ADMINISTRATION**

The contractor shall provide a modular capability consisting of software and/or hardware to reduce administrative burden in operation, including the support of automated startup, automated shutdown, and back-up/restore capability for the tactical hardware environment. In order to enable automated startup, the capability must be operational while the tactical hardware is powered off. The capability shall possess prior Assured Compliance Assessment Solution (ACAS) scans and shall be security-hardened to comply with applicable Security Technical Implementation Guides (STIGs) and IA controls to permit fielding with current fielded systems.

Additionally, the contractor shall provide the following Automation of Tactical Intelligence System Administration:

- a. Actively monitor system measurements through dashboards and other automated tools fully integrated into the Army C5ISR infrastructure to quickly determine patterns and to assist with proactively responding to errors, performance, and security.
- b. Gather, analyze, and act on software metrics ensuring that an application remains easily maintainable and continually evolves.
- c. Communicate with the end users to understand performance issues that are encountered real-time and create, test, and monitor system performance and report metrics that are valuable to all stakeholders to ensure the system is designed to meet the end-user needs.
- d. Develop recommendations for Government decision of proposed solutions that will optimize the balance between network performance and network cost, thereby improving communication, network optimization, and integration within the COE (**Section F.3, Deliverable 26**).

#### **C.5.2.3.4 SUBTASK 2.3.4 – FINAL SOFTWARE DELIVERY**

For final software deliveries, the tasks and products must be in compliance with the T&E Master Test Plan. The software must be prepared for use in accordance with the Configuration Management Plan. A software version description must be prepared for each software delivery, including to the sustainment site.

The contractor shall provide the following Final Software Delivery Support:

- a. Prepare and provide the Government with copies of all software developed on this effort (**Section F.3, Deliverable 27**), with all code documentation, source, object, and executable delivered via a transfer medium determined by the I2WD TPOC.
- b. Develop and update the technical and software user manuals including the final design document and operating instructions, operator's quick reference guide, and technical data for provisioning, such that the documents reflect the required configuration as delivered (**Section F.3, Deliverable 28**).
- c. Develop and update the configuration guides and training course materials (**Section F.3, Deliverable 29**) to support system fielding to include, but not limited to, system configuration guides, system check out guides, post clone guides, and user manuals for the system such that the documents reflect the required configuration as delivered.
- d. Update technical documentation for items comprising Modification Work Order (MWO) kits that will need to be provisioned by the Government in the future. Provisioning updates shall include drawing changes to accommodate design changes.

#### **C.5.2.4 SUBTASK 2.4 – PROGRESSIVE ENGINEERING LAB FACILITIES**

The contractor shall provide a lab synchronization engineering process which will ensure daily inventory of software between unclassified and classified labs, maintenance of software baselines and version control between all labs, and synchronization of multi-lab integration activities. The contractor shall provide input into the establishment and support of the baseline reference environment for future software releases' formal integration and acceptance testing.

The contractor shall provide the following Progressive Engineering Lab Facilities Support:

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- a. Develop and utilize a technology capability incubation process which fosters emerging capabilities to enable the intelligence analyst to leverage advanced analytics to efficiently exploit intelligence information.
- b. Create, configure, and maintain complete integration environments for current and future Army IT systems development. This support shall include the maintenance of the tactical and strategic platforms.
- c. Create an environment to develop and execute an integration process to support the current software release, integration of new or updated components, and facilitation to create and test stable and deployable releases.
- d. Advance and facilitate software integration analysis and reporting.
- e. Develop and maintain an SIL management plan that:
  1. Captures repeatable processes and procedures for hardware/software integration and testing,
  2. Describes cloud architecture, engineering, and development efforts,
  3. Describes SIL computing development and prototyping initiatives, and
  4. Incorporates configuration control over hardware and software upgrades, enhancements and capabilities (**Section F.3, Deliverable 30**).
- f. Deploy, configure, and operate a complex FoS from the contractor lab facilities.
- g. Conduct daily backups and provide no less than 30 days of off-site storage to restore files, software baselines, and/or entire virtual machines.
- h. Provide the ability to restore from backup any file, software baseline, and/or entire virtual machine within 24 hours of request.
- i. Conduct active cyber monitoring to include no less than 90 days of logging made available to authorized users for auditing.
- j. Ensure VPN systems are operational and accessible 24 hours per day, seven days per week (24/7).
- k. Utilize a designated unclassified VPN environment for remote access of software vendor development, integration, and testing prior to delivering software to I2WD System Integration Lab environment.

### **C.5.3 TASK 3 – GOVERNMENT SPONSORED RESEARCH AND DEVELOPMENT (GSRD) SERVICES**

This task allows the Government to capitalize on current and emerging technologies used to support advanced analytics, which are rapidly maturing throughout the commercial, Government, academia, industry, and open source communities, while identifying and implementing appropriate performance solutions to improve productivity, reduce cost, and increase intelligence analyst effectiveness.

The contractor shall provide the following GSRD Services support:

- a. Provide full-scale mission acquisition support for external agencies to include Distributed Ground Systems, Army Cyber Command (ARCYBER) and others.
- b. Establish a technology capability incubation process to foster emerging capabilities for the intelligence analyst.

- c. Evaluate technologies through an established maturity evaluation model to provide stakeholders with recommendations on insertion into the core program of record software baseline.
- d. Provide Scientific and Technical Reports (**Section F.3, Deliverable 26**) that may include software performance metrics and results.
- e. Provide the following deliverables that capture the scope of this TO:
  - 1. Software Test Report (**Section F.3, Deliverable 23**)
  - 2. Software Design Description (SDD) (**Section F.3, Deliverable 25**)
  - 3. Software Product Specification (SPS) (**Section F.3, Deliverable 27**)
  - 4. Software User Manual (**Section F.3, Deliverable 28**)
  - 5. Software Requirements Specification (SRS) (**Section F.3, Deliverable 33**)
  - 6. Software Version Description (**Section F.3, Deliverable 36**)
  - 7. Software Test Plan (**Section F.3, Deliverable 37**)
  - 8. Software Test Description (**Section F.3, Deliverable 38**)
  - 9. Interface Requirement Specification (IRS) (**Section F.3, Deliverable 39**)
  - 10. Operational Concept Document (OCD) (**Section F.3, Deliverable 40**)
  - 11. Computer Software Product End Items (**Section F.3, Deliverable 41**)
  - 12. Interface Design Description (IDD) (**Section F.3, Deliverable 42**)

#### **C.5.3.1 SUBTASK 3.1 – MACHINE LEARNING, COGNITIVE COMPUTING, ARTIFICIAL INTELLIGENCE R&D**

This subtask supports the physical production, engineering, and assessment facilities, serving Government interests, for advancing early assessment, prototyping, and integration of commercial, academic, and Government innovations. This task requires intelligence domain expertise, as well as operational and technical engineering expertise to guide the Government through assessments and analysis.

The contractor shall provide the following Machine Learning, Cognitive Computing, Artificial Intelligence R&D support:

- a. Review and provide analyses and recommendations on Government-provided documentation and requirements for developing a plan of action.
- b. Conduct intelligence domain assessments and analysis.
- c. Assist the Government with collaboration across Government organizations and the convergence of Intelligence domain expertise with operational and technical engineering.
- d. Assist the Government with developing research plans and requirements to meet R&D objectives, including the identification of data, systems, and skillsets.
- e. Conduct gap analysis and produce mission-centric solutions, scenarios, and prototypes on which the Government can make a decision to support immediate operational needs while facilitating future force development.
- f. Coordinate and collaborate with the Government for the conduct of operational and mission-centric assessments, integration, and prototyping of COTS and GOTS

innovations advancing future force capabilities while maximizing commercial competition.

- g. Perform statistical learning and pattern recognition through unsupervised, supervised, and reinforced machine learning methods.
- h. Conduct activities to train machines to gain contextual understanding of complex problems through machine intelligence, cognitive computing, and machine reasoning.

#### **C.5.3.2 SUBTASK 3.2 – INTELLIGENCE COMMUNITY INFORMATION TECHNOLOGY ENTERPRISE (IC ITE)**

This subtask will assist in adopting and enabling IC ITE for the future to reduce complexity and leverage the IC and national level combat support agencies.

The contractor shall provide the following IC ITE support:

- a. Identify, define, and develop an engineering roadmap (**Section F.3, Deliverable 31**) supporting modernization and migration of Army Intelligence systems with the DoD IC ITE roadmap.
- b. Align Enterprise-Scale Architecture systems with the IC ITE roadmap.
- c. Integrate the IC ITE Desktop, Tactical Cloud Reference Implementation (TCRI), and other cloud solutions.

#### **C.5.3.3 SUBTASK 3.3 – PROCESSING, EXPLOITATION, AND DISSEMINATION (PED) MISSION SUPPORT**

The objective of this subtask is to support the design, development and implementation of a data enterprise architecture to support full spectrum analytic awareness.

The contractor shall provide the following PED Mission Support:

- a. Research multiple-Intelligence (multi-INT) machine learning to automate the fusion of multiple single-Intelligence (single-INT) data sources to provide faster and more comprehensive distributed PED solutions.
- b. Conduct analysis, development, integration, and testing to identify and mature emerging PED analytic capabilities from industry, Government, and academia.
- c. Refine, enhance, and transform intelligence PED capabilities across the DoD.
- d. Provide configuration management and governance for all Infrastructure as a Service (IaaS)-hosted solutions and leverage Activities Based Intelligence (ABI), Structured Object Management (SOM), and Object Based Production (OBP).

#### **C.5.3.4 SUBTASK 3.4 – ADVANCED CLOUD TECHNOLOGY AND CAPABILITIES SUPPORT**

This subtask involves supporting migration efforts for transitioning current cloud architectures. This effort is required to incorporate designated Army and DoD standards such as IC ITE, Joint Information Environment (JIE) and Defense Intelligence Information Enterprise (DI2E).

The contractor shall provide the following Advanced Cloud Technology and Capabilities Support:

- a. Evaluate cloud technologies, architectures, and data types and develop an implementation plan (**Section F.3, Deliverable 31**) for implementing cloud technologies and capabilities with Enterprise-Scale FoS.
- b. Design, develop, and implement new indexing methods capable of parallel query, in-memory indexing, and support for multiple indices capable of indexing more than five million artifacts in less than five hours.
- c. Develop high volume, high velocity data ingestion, parsing, and processing system architectures as well as the ability to execute improvements to streaming data and structured file-based processing.
- d. Develop an approach and execution plan for the Government to work with industry leaders to support the development of technologies in cloud strategy, cloud security, risk management, data analytics cloud application development, and cloud infrastructure and platform services.
- e. Gather lessons learned (**Section F.3, Deliverable 32**) from cloud migration efforts upon which the Government can determine if the information/procedures should be applied to future infrastructure and standard migrations.
- f. Contribute to the design, integration, and migration efforts for transiting existing big data and cloud-based architectures into the tactical environments.

#### **C.5.3.5 SUBTASK 3.5 – ELECTRONIC WARFARE (EW)/SIGNALS INTELLIGENCE (SIGINT) TECHNOLOGY DEVELOPMENT**

This subtask will support current systems and evolving systems in the EW/SIGINT domain and require utilizing NSA technical SIGINT requirements that need to be met. System engineering support will be required to assist the Government during development of the systems, including providing the means for quick reaction responses from specific vendors with unique capabilities in the EW/SIGINT technology development field, including Electronic Attack (EA), Electronic Protection (EP), and Electronic Warfare Support, as well as associated engineering domains including Electrical Engineering, Computer Science, and Radio Frequency (RF) Engineering. This subtask requires contractor network lab support capabilities to include support and utilization of testing capabilities and procurement of COTS products.

The contractor shall provide the following EW/SIGINT Technology Development support:

- a. Decompose EW and SIGINT requirements into specific design specifications (**Section F.3, Deliverable 25**) and conduct requirements refinement and specialization of features/specific techniques.
- b. Develop requirements and design and build initial prototypes (**Section F.3, Deliverable 33**).
- c. Define requirements, identify standards and policies, and assist with the transition of technologies to new SIGINT platforms.
- d. Develop and integrate Passive Electromagnetic Environment (EME) collection capabilities, active programs, and fielded efforts and capabilities required for the full spectrum of Electromagnetic Operational Environment (EMOE) programs and fielding.
- e. Assess and integrate existing and emerging ManPack SIGINT solutions and approaches.

- f. Develop and maintain ICDs and system manuals (**Section F.3, Deliverables 24, 28, and 29**).

#### **C.5.3.6 SUBTASK 3.6 – ADVANCED INTELLIGENCE PROCESSING PROTOTYPES, MODELING AND SIMULATION**

This subtask provides support to multi-INT activities and transactional data analysis and problem solving methodologies.

The contractor shall provide the following Advanced Intelligence Processing Prototypes, Modeling and Simulation support:

- a. Develop, integrate, test, and secure a prototype concept of tactical-based intelligence systems utilizing ABI service with existing Army intelligence capabilities.
- b. Develop tactical intelligence concepts, use cases, and test scenarios aligned with Army Tactical Intelligence.
- c. Develop and document a defined set of concepts and methodologies utilizing physical and virtual systems to meet Tactical collection management objectives including, but not limited to, asset management, multi-INT collection response, requirements management, and mission management (**Section F.3, Deliverable 26**).
- d. Conduct systems engineering for architecture and requirements in support of Army and National tactical systems' needs.
- e. Maintain an information sharing conduit between Government organizations to test sample data streams, ingestion, annotation, and analytic assessment capabilities between National ABI and I2WD supported programs.
- f. Research, design, and develop advanced User Interface (UI) concepts to support enhanced intelligence processing and exploitation across the Army tactical enterprise. UI concepts and capabilities shall support tactical intelligence operations in a Disconnected, Intermittent, and Low-bandwidth (DIL) communications environment.
- g. Develop, integrate, test, and document advanced intelligence technologies and incorporate key IC frameworks and toolsets within Enterprise-Scale FoS in support of tactical operations.
- h. Produce prototypes designed to reduce technology risks across relevant intelligence domains, which would be released as part of future competitive procurements, which may or may not be used by companies competing for intelligence programs
- i. Develop an integrated solution for hosting tactical intelligence capabilities on U.S. Army vehicles, leveraging power, cooling, and fielding infrastructure currently in place with the Army Integrated Logistics Support (ILS) teams.
- j. Update and maintain the current Delta Training Package (**Section F.3, Deliverable 34**), to include task development and lesson plans in the Army Systems Approach to Training (ASAT) database, the training package is suitable for teaching the new equipment training (NET) course, which is required for military occupational specialties.
- k. Design and execute lab facility upgrades in support of development, integration, and test activities for the software baselines.
- l. Provide engineering services for current (and next generation when available) tactical edge mobile solutions and capabilities on U.S. Army vehicles in direct support of the



COE/CP CE Operations/Intelligence (OPS/INTEL) convergence activities and all formal test events to include SIE.

- m. Define, develop, and implement highly complex Enterprise modeling and simulation capabilities such as GPS constellation modeling and simulation and overlay signals of opportunity
- n. Perform analyses, Bayesian Belief Network modeling, and evaluation of current operational systems to assess the need for new systems (such as PNT or tactical radio devices) and/or analyze proposed PNT systems to determine whether the proposed systems can be expected to satisfy projected needs/requirements developed by the Government.

#### **C.5.3.7 SUBTASK 3.7 – CYBER TECHNOLOGY**

I2WD may coordinate and collaborate with National Cyber Centers and DoD Operational Commands, and will require ongoing awareness of recent malicious activity, threat actors, TTP's, offensive cyber tool development, and existing and emerging technological approaches for Electronic Warfare Officers (EWOs) to coordinate multiple EW/Cyber assets.

The contractor shall provide the following Cyber Technology support:

- a. Model and simulate modern attack to include kinetic weaponry, electromagnetic, physical, and EW/Cyber.
- b. Deliver insider threat analysis services to analyze alerts, identify trends, and escalate cases for investigation as well as develop metrics for data exfiltration trends based on office location and leadership responses to incidents.
- c. Provide Cyber force protection and Indications and Warnings (I&W) to operational units on global adversary activities targeted against military personnel/installations.
- d. Develop Cyber Analytic systems capable of analyzing logical and physical cyber operational pictures while introducing EW and RF-related effects using integrated earth models such as Terrain Integrated Rough Earth Model (TIREM) for propagation loss over irregular terrain.
- e. Develop, integrate, test, and deploy Cyber Analytic Tools which are not geographically bounded, have flexible cyber with data enrichment, version control, and attribution at the document entity level.
- f. Define real work threat vectors and accurately test prototype or existing hardware to ensure mission readiness.
- g. Assist in assuring defense of offensive platforms within any known scenario.

#### **C.5.4 TASK 4 – TRAINING**

The contractor shall update and maintain existing training course material (**Section F.3, Deliverable 34**). The contractor shall provide instructors with Intelligence Domain Expertise to facilitate an 80-hour training course approximately twice a year. This training shall be coordinated with the Program of Instruction (POI) for an 80-hour maintenance sustainment course. The training course shall be conducted onsite at APG and Ft. Hood, TX. If necessary, the contractor shall provide the training course at the contractor's facility (within local travel limits from 6003 Combat Drive, APG, MD 21005). The contractor's facility space shall accommodate

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no less than 12 personnel.

The contractor shall create and update training packages (**Section F.3, Deliverable 34**), to include task development and lesson plans, to be suitable for the teaching of the new equipment training course for the required military occupational specialties. The contractor shall provide instructors that are knowledgeable about the system installation material and training course material.